REMARKS

Status of the Claims

The status of the claims is as follows:

- Claims 34-38, 41-44, 85, 86, 95-98, 110-114 and 123-136 are all pending.
- Claims 34, 36-38, 41-43, 95, 110-112, and 114 are amended.
- Claims 39, 40, 45-94, 99-109 and 115-122 are canceled.
- Claims 44, 85, 86, 96, and 98 are withdrawn.
- New claims 123 to 136 are added.

Claims 34-39, 41-43, 95, 109-122 have been rejected under 35 USC 112, first paragraph for not reasonably providing enablement for a method of detecting steroid hormone-like cancer growth stimulation by a subject of interest. These claims have also been rejected under 35 USC 112, first paragraph for lack of written description support for the anti-steroid, secretory immunoglobulins.

Claims 34-43, 95 and 109-122 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 34-43, 95 and 109-122 have been objected to because of informalities. Claims 35, 36, 109-112, and 115-120 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Enablement and Lack of Written Description (Office Action Points 10 and 11)

The Office asserts that the specification provides no information as to structures that are common to the exemplified immunoglobulin inhibitors that would allow one of skill to predictably make the claimed genus of inhibitors based on a structure/function correlation. The Office also asserts that the ordinary artisan could reasonably conclude that Applicants were not in possession of the claimed genus of isolated, secretory immunoglobulins having steroid hormone inhibitory properties at the time of application filing.

The applicant understands the office action of 3/12/09 to say that the instant specification only sets forth three immunoglobulin inhibitors that in fact are effective as the steroid reversible immunoglobulin inhibitors of steroid-responsive cell growth, and that based on the disclosure of the three effective immunoglobulin inhibitors, a broadly claimed invention of immunoglobulin inhibitors is not enabled. The applicant also understands the Office to acknowledge that as drawn to the broadly claimed immunoglobulin inhibitors, the specification teaches that IgA, IgM and certain IgGs provide negative regulation of steroid hormone responsive mucosal epithelial cancer cells. While applicant takes exception to the enablement and written description rejections applied to the claims, the applicant acknowledges the Examiner's arguments, and for the sake of proceeding with the prosecution of this application, the applicant has amended the claims to specify IgA and/or IgM to be in line with these arguments. However, the applicant reserves the right to pursue in later related applications the more broadly claimed invention of immunoglobulin inhibitors in general.

Thus, claim 34 has been amended to specify that the immunoglobulins are at least one immunoglobulin chosen from the group consisting of non-monomeric plasma IgA and polymeric IgM. Support for these immunoglobulins is acknowledged in the prior office actions. For example, in the office action of 3/3/05, it is stated that "The specification teaches that dimeric/polymeric plasma-derived IgA, but not serum monomeric IgA or sIgA, is a steroid hormone reversible inhibitor of steroid responsive cancer cell growth (P. 129, para 0481). The specification further teaches that plasma-derived multimeric IgM is a steroid hormone reversible inhibitor of steroid responsive cancer cell growth (p. 126, para 0472). Thus, the claims now specify immunoglobulins that are specifically identified as inhibitors of cancer cell growth in the written description.

Identifying the particular immunoglobulins that are effective in inhibiting cancer cell growth and that are described in detail in the written description will allow a person of ordinary skill in the art to practice this aspect of the claimed invention. Therefore, the applicant respectfully requests that the rejections under 35 USC 112 First Paragraph for non-enablement and lack of written description be withdrawn.

Informality Objections (Office Action Point 12)

a) Inconsistency is asserted for alternatively using the terms “amount” or “quantity” in claims 34, 43 and 95. The use of ”amount” is maintained in claim 34 and used consistently in the other claims. The phrase including “quantity” has been deleted from claim 43 and claim 95.
b) Claims 34-43, 95 and 109-122 recite "steroid hormone-free nutrient medium", "nutrient medium" and "medium." These claims have been amended to consistently use the term “nutrient medium.”
c) Claim 38 has been amended and the misspelled word “dimmer” has been removed.
d) The typographical error of “secreted immunoglobulins” has been corrected in claim 34 to read “ immunoglobulins”.

Improper Dependent Form Objection (Office Action Point 13)

Claims 35, 36, 109-112, and 115-120 have been objected to under 37 CFR 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claims 115 to 120 appear to be duplicative of claims 109-112, 35 and 36, respectively. Claims 115 to 120 have been canceled, so this objection is now moot.

Indefiniteness Rejection (Office Action Point 14)

a) Claims 34-43, 95 and 109-122 are asserted to be indefinite for the recitation "an amount of isolated secreted immunoglobulins that inhibit steroid hormones sufficient to inhibit cell growth in the absence of an inhibition-reversing amount of said steroid hormone." Claims 39-40, 95 and 115-122 have been canceled. Claim 34 has been amended to refer to a Markush group of immunoglobulins. Claim 34 further has been amended to delete the term “same” and to substitute the word “a” in front of the later reference to a steroid hormone.

b) Claims 34-43, 95 and 109-122 are asserted to be indefinite for the recitation of the phrase "steroid hormone-dependent cell growth stimulating effect by said substance of interest". Claim 34 has been amended to recite that the read-out provides indication of "a cancer cell growth stimulating effect."

c) Claims 34-43, and 109-122 are asserted to be indefinite because they do not provide a relationship or correlation between the "cancer cell" referred to in the preamble of Claim 34 and the predetermined population of "steroid hormone-responsive cells" in the body of Claim 34. Claim 34 has been amended to clarify this invention by adding the term "cancer" at lines 3 and 17 . Claim 43 has been amended by adding the term "said" in line 2 to clarify that the second predetermined population is of the same steroid hormone-responsive cancer cells.

d) Claims 38 and 42 recite the limitation "said immunoglobulin inhibitor". There is asserted to be an insufficient antecedent basis for this limitation in the claim. Claims 38 and 42 have been amended with consistent terminology referring to an "immunoglobulin" to provide proper antecedent basis back to claim 34.

e) Claim 43 recites "inactivated immunoglobulin inhibitor", and it is asserted that it is not clear what the relationship or correlation is for this element of the assay to the cell growth promoting effect of the substance of interest. The clause including "inactivated immunoglobulin inhibitor" has been deleted from claim 43.

f) Claims 95 has been rejected under §112 as indefinite for "how a substance that is itself not estrogen can mediate a cell-proliferating effect through an estrogen dependent pathway in the absence of any estrogen in the medium." This exactly what the test is designed to find, substances that can interact with a cell in the same way the estrogen does. There is great concerns with estrogen mimics in the environment from sources such as insecticides (DDT is one), and this test could detect such activity. However, claims 95 is amended to remove "estrogen dependent", so that the test is for cell growth due to addition of the substance of interest and not from estrogen itself, therefore the inventor respectfully requests that this rejection be withdrawn.

g) Claims 109 and 115 have been rejected under §112 as indefinite. However, claims 109 and 115 have been canceled so the rejections are moot.

h) Claims 114 and 122 are asserted to be indefinite for the recitation "(per 35-mm diameter culture dish)." The phrase has been deleted from claim 114 and claim 122 has been canceled, and these rejections are therefore obviated.

New Claims

New claims 129 and 130 are based upon the substance of claim 95, and rewritten as independent claims. No new matter has been entered. The subject of the claims now consistently involves "steroid hormone-responsive growth stimulation by a substance of interest" or " estrogenic cancer cell growth stimulation by a substance of interest." The read-out of the determination in the claim will indicate whether the subject of interest has steroid hormone properties or estrogenic properties with respect to the cancer cell growth. The point of these claims is to determine if a substance has these properties (hormone mimics), which are important factors to know. The specification in Example 21 at paragraph [0733] states that "[t]hese methods will permit evaluation of industrial, environmental, biological, medical, veterinary medicine and other potential sources of estrogenic or androgenic activity under the most sensitive conditions yet developed." This method will allow one to detect if a substance of interest does indeed interact with a steroid hormone receptor to promote cell growth.

New claims 123, 125, 126, and 128 find support at least in Table 1 on page 20, which lists the cells lines used in the examples of the present application.

New claims 124 and 127 find support as least in Table 2 on page 22, which lists the hormones of interest for the present application.

New claim 130, 132 and 136 finds support at least in Fig. 101, showing how plasma IgA can aggregate to other forms - dimeric or polymeric.

New claims 133, 134, and 135 find support in the original claims 28, 29 and 31, respectively, but are written to be dependent upon claim 36 of the present application.

Conclusion

The Office acknowledged in the last office action (3/12/09) that the specification teaches that the instant specification satisfies the long-felt needs for a sensitive way to screen substances for estrogenic and androgenic effects. The office also acknowledges that the specification teaches that since the early 1980's researchers have unsuccessfully tried to identify serum-borne inhibitors of steroid responsive cell growth and despite its first proposal more than fifteen years ago, the purified steroid reversible serum-borne inhibitor had not been previously described. Also, that the specification teaches that for the first time it is disclosed that, surprisingly, certain immunoglobulins exert a steroid hormone reversible negative regulatory effect on cancer cell growth. These immunoglobulin inhibitors have many immediate and potential applications as reagents for cell growth assays. For example, they are useful for in vitro testing of substances for estrogenic effects (or other steroid hormone-like effects) on steroid hormone responsive cell growth in a suitable assay system and thus are useful for assaying agents of interest, such as drugs or environmental chemicals, for their steroid hormone-like effects on cell growth stimulation as an aid to avoiding undesirable proliferative side effects of such drugs or substances in vivo. The claimed method is useful for identifying substances that have unrecognized hormone-like properties that present health hazards.

Thus, as acknowledged by the office, the specification teaches that there was a long felt need in this arena and the results are surprising for the material described in the specification, especially with regard to certain immunoglobulins acting as inhibitors. Also, the Office acknowledges that assays based on the findings in the specification are useful; these are the assays of the present application. The claims have now been amended so that the claims are fully supported by the specification. Therefore, the applicant respectfully puts forward that the claims are now patentable, and in condition for allowance.

In view of the above amendments and remarks, the Examiner is requested to pass the case to issue. Should the Examiner have any comments or suggestions that might facilitate the prosecution of this application, the Examiner is requested to contact the undersigned representative by telephone.

Respectfully submitted,

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